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# Show Me Agriculture

## Space Age Jeans

If someone asked you where your denim jeans came from, what would you say? You would probably say that they came from the store. Did you ever stop to think that your jeans could have come from a farm? Denim jeans are made from cotton. Cotton is a crop that is grown on farms in southeast and southwest Missouri. Southern states such as Texas and Arkansas grow most of our cotton.

Farmers in some parts of Missouri raise large amounts of cotton on their farms. In the spring, a cotton farmer uses a big tractor with a special planter to plant the cotton seeds. The cotton plants grow for several months and form cotton bolls (the part of the plant that contains the cotton fibers). A large cotton picker is used to harvest cotton bolls later in the fall.

### Read this story about a "space age" Missouri cotton farm:

Mr. and Mrs. Brown are cotton farmers. They live in southeast Missouri and each year they plant about 1,200 acres of cotton. Their farm measures nearly two miles long and one mile wide. The Browns have two huge tractors that they use to prepare the soil and plant the cotton seeds. The Browns also use a GPS guidance system when planting, spraying, fertilizing, tilling, and harvesting. GPS stands for "Global Positioning System". GPS uses satellites to allow the Browns to tell exactly where they are in their fields. One of their large tractors is fitted with a light bar that receives a signal from a satellite. While driving the tractor, the farmer can watch a bar of light to make sure the tractor is staying on a straight line and is not going over an area for a second time. The light bar GPS system allows the Browns to work in dust, fog, wind, or even at night. They use the GPS to map fields so they can apply just the right amount of fertilizer to each area of the field. This is important so that they don't put too much fertilizer on any part of the field. That would be a waste of their time and money. When the Browns are using the tractor, there is a computer in the tractor that receives information from the satellite. When the cotton plants are growing, the Browns can use GPS information to help decide exactly where to spray a pesticide. Pesticides are used to prevent insects from damaging the plant, but farmers don't want to use too much of them. At harvest time, the large cotton picker not only harvests the cotton, but it also keeps track of how much cotton was produced in each part of the field. The farmer can then have a map that tells which parts of each field produced lots of cotton and which areas did not produce so much. Then next year, they can spread more fertilizer on the areas that did not produce as much cotton or plant a different crop in that area instead.



Do you think this sounds like a story from the future? Just a few years ago, we would have said that this was a "space age" farm. However, this story tells about how some Missouri farms produce cotton in the year 2003 - right now! There is no doubt that the cotton in your jeans came from a cotton farm and it is very possible that satellites far above the earth played an important part in the production of that cotton.

Many times, when we think about products such as cotton that come from farms, we may think that only a farmer produced the cotton. You can see from this story that farmers are important, but farmers rely on many other helpers who are not on the farm. You may not have even realized that someone who develops satellites could be involved in agriculture. So just think about it and you will see that agriculture includes everyone who assists in the production of our food and fiber.

# Boll Weevil

Cotton has been an important crop in many states for nearly 200 years. A major problem that some cotton farmers have is an insect called the boll weevil. This insect pest lays its eggs inside a cotton boll before the cotton fibers start to form. The eggs then hatch and the larvae (young weevils) eat their way out of the cotton boll destroying the cotton as they grow.

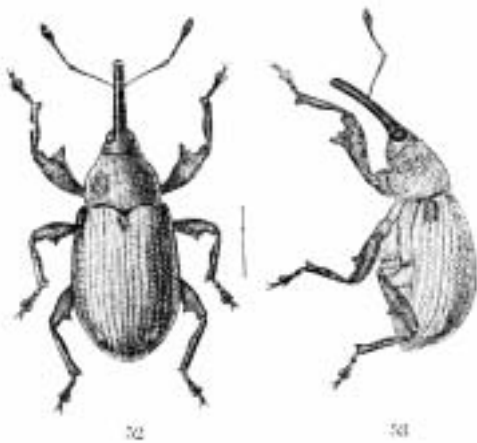


Figure 1. A boll weevil (greatly enlarged).



Figure 2. A cotton boll with a weevil larva

The weevil came into the United States before 1900 from Mexico. In just a few years, the insect had spread throughout all of the cotton growing states. The boll weevil caused billions of dollars of damage to America's cotton crop. Farmers tried many ways to get rid of this terrible pest. Some farmers just gave up trying to raise cotton.

Entomologists (people who study insects) started trying to find ways to control or stop the boll weevil. After a few years, entomologists developed chemicals that would kill some of the weevils. Chemicals that kill insects are called pesticides. The pesticides allowed farmers to start growing cotton again without such fear of the weevil.

Pesticides can be very expensive to use and although pesticides have been tested for safety, not everyone thinks pesticides should be used. Because of these reasons, entomologists have been trying to help farmers eradicate (totally get rid of) the boll weevil. Some southern states have already been successful in eradicating the boll weevil. Missouri cotton growers have now provided a fund to be used to help eradicate the boll weevil in our state. This will be a big job for both the cotton growers and the Missouri Department of Agriculture.

So how do you eradicate boll weevils? Eradication of the boll weevil starts by spraying every cotton field the first year. The next year, traps are used. The traps are cone shaped and have an odor that attracts the weevils. The odor fools the weevils and they come into the trap hoping to find a mate. Instead, they are trapped there. The traps help entomologists decide if more spraying should be done. For eradication to work, all farmers must cooperate and work together. Entomologists hope that if all farmers cooperate, the boll weevil will be eradicated in the entire United States by the year 2005.

55 inches tall

21 inches thick



28 inches wide

## A Bale of Cotton

After cotton has been harvested, it is sold in a bale. A bale is a big package of cotton that weighs about 500 pounds. One bale contains enough cotton to make about 250 pairs of children's jeans. Use this information to help you answer these questions about cotton and jeans.

1. If cotton is selling for sixty cents per pound, how much does a farmer get for selling one bale of cotton?

2. How many pounds of cotton are used to make one pair of jeans?



3. How much money does the farmer get for the cotton used to make one pair of jeans?  
(Use questions 1 and 2 to help solve this problem.)



4. About how much does a new pair of jeans cost?  
(Look in your local newspaper or clothing catalog for current prices.)

5. How much more does the new pair of jeans cost than the amount that the farmer received for the actual cotton in the jeans?  
(Use question 3 to help solve this problem.)



6. For discussion: Since a farmer gets only a small portion of the total cost of a pair of jeans, who gets the rest of the money? (Economic term: "middle man")